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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/995,719	11/29/2001	Masao Kato	1272.C0495	2605

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EXAMINER

TRAN, LY T

ART UNIT PAPER NUMBER

2853

DATE MAILED: 01/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/995,719

Applicant(s)

KATO ET AL.

Examiner

Ly T TRAN

Art Unit

2853

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 October 2003.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-10 and 12-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-10 and 12-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 14.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1, 3-10, 12-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yano et al. (EP 496 533) in view of Kashino et al. (USPN 6,109,734).

With respect to claims 1 and 10, Yano et al. discloses a method for filling buffer chamber in a print head with bubble and an apparatus to print an image on a print medium comprising:

- A print head comprising a plurality of ejection opening, a plurality of channel (Fig.2 and 3) a common liquid chamber for supply ink to plurality of channels, buffer portion (Fig.1: element 15) and a bubble generating means for filling the buffer portion with bubble (Fig.1) comprising step of:
- Filling the buffer portion with bubble by driving the bubble generating means (Column 8: line 24-58)
- Executing a recovery process of discharging the ink through the ejection openings after the bubble filling step (Column18: line 49-50) wherein the recovery process step, excess of the at least one bubble filled in the buffer

portion is removed (Column 16: line 57-58, Column 17: line 1-5, Column 18: line 49-57)

With respect to claims 3 and 12, Yano et al. discloses that during the bubble filling step, bubble is allowed to grow up to location of the channel adjacent to buffer chamber (Column 20: line 10-12).

With respect to claims 4 and 13, Yano et al. discloses the bubble generated by driving the bubble generating means is obtained by precipitating a gas dissolved in the ink (Column 19: line 9-11).

With respect to claims 6 and 15, Yano et al. discloses that plurality of channels are each provided with an electro-thermal converter as means for generating ejection energy that cause the ink to be ejected and during the bubble generating step, bubble is generated using the electro-thermal converter together with bubble generating means (Fig.20-22, Column 34: line 54-55)

With respect to claims 7 and 16, Yano et al. discloses the recovery process comprising sucking and discharge the ink through the ejection opening (Column 36: line 29-33).

With respect to claims 8 and 17, Yano et al. discloses recovery process is executed before a printing operation (Column 24: line 54-58, Column 25: line 1-3)

With respect to claims 9 and 18, Yano et al. discloses before the recovery process, the print head is heated at a temperature used for normal printing or higher (Column 24: line 30-58)

With respect to claims 5 and 14, Yano et al. discloses during the bubble-generating step, the bubble generating means is driven to generate bubble while preventing film boiling from occurring in the ink (Column 36: line 54-Column 36: line 18).

However, Yano fails to teach the buffer portion located at an end of an arrangement direction of the channels and adjoining, in the arrangement direction of the channels and at least one of the channels in communication with at least one corresponding ejection opening.

Kashino et al teaches the buffer portion Fig.8: element 306) located at an end of an arrangement direction of the channels (element 303) and adjoining, in the arrangement direction of the channels (as figure 8 shows the bubble moves into the bubble chamber 306) and at least one of the channels in communication with at least one corresponding ejection opening (element 301).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teaching of Yano to have the buffer portion located at an end of an arrangement direction of the channels and adjoining at least one of the channels in communication with at least one corresponding ejection opening as taught by Kashino et al. The motivation of doing so is growth of bubbles in the bubble cell occurs only in the direction away from the array of the ink flows channels, thus suppressing tendency for such grown bubbles to reach the ink flow channels.

Response to Arguments

2. Applicant's arguments filed 10/3/03 have been fully considered but they are not persuasive.

Applicant's argument that Yano does not disclose at least a buffer portion located at an end of an arrangement direction of channels and adjoining, in the arrangement direction of the channels, and at least one of the channels in communication with at least one corresponding ejection opening is not persuasive because in the office action, the Examiner stated that Kashino teaches those elements, no Yano as refer to figure 8, a buffer portion (306) located at an end of an arrangement direction of channels (303) and adjoining, in the arrangement direction of the channels, and at least one of the channels (303) in communication with at least one corresponding ejection opening (301). Therefore, the combination of Yano and Kashino still meet the limitation of the claim.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ly T TRAN whose telephone number is 703-308-0752. The examiner can normally be reached on M-F (7:30am-5pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on 703-308-4896. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0967.



January 8, 2004



Stephen D. Meier
Primary Examiner